

Appendix F Environmental Commitments Record

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Section and Measure Number ¹	Avoidance, Minimization, and/or Mitigation Measure and Brief Description	Responsible Branch/Staff	Timing / Phase	Applicable 2015 Caltrans Standard Specs	NSSP Required	Compliance Action	Verification of Compliance		Remarks
							Initial	Date	
	LAND USE								
LU-1	The Contractor will return any landscaping temporarily disturbed or removed during construction to pre-project or equivalent conditions.	Contractor	Post Construction	5-1, 20-3, and 20-4					
LU-2	After project construction, the Orange County Transportation Authority (OCTA) shall request the City of Irvine to amend their General Plan to reflect the conversion of General Office use to transportation use.	OCTA/Project Manager	Post-Construction	--					
LU-3	Detours for any temporary closures of the recreational facilities identified will be implemented by the Contractor. Informational and detour signage will be posted in advance to inform users of any temporary closures and detour routes.	Design Engineer/ Contractor	Construction	7-1, 12-3, 12-4, 40-1, 41-1, and 41-11					
	COMMUNITY IMPACTS								
COM-1	Business access will be maintained at all times during construction.	Design Engineer/ Contractor	Pre-Construction/ Construction	7-1					
	UTILITIES/EMERGENCY SERVICES								
UT-1	The Contractor will prepare utility relocation plans in consultation with the affected utility providers/owners for those utility facilities that will need to be relocated, removed, or protected in-place. If relocation is necessary, the final design will focus on relocating utilities within existing public rights-of-way (ROWs) and/or easements. If relocation outside of existing or the additional public ROWs and/or easements required for the project is necessary, the final design will focus on relocating those facilities to minimize environmental impacts as a result of project construction and ongoing maintenance and repair activities.	Design Engineer/ Contractor/ ROW Agent	Design ROW Acquisition	5-1 and 20-10					
UT-2	Alternate emergency service routes and traffic handling plans must be coordinated with local jurisdictions and emergency service providers (e.g., California Highway Patrol [CHP], local police, fire, paramedics) during the final design phase and described in the Transportation Management Plan (TMP) (Measure T-1). The TMP will include emergency service routes that serve hospitals, fire/police stations, emergency shelters, emergency command centers, and other facilities that provide essential services in times of emergencies within the study area. These emergency service routes will be maintained during construction or alternate routes will be provided.	Contractor	Design/ Pre-Construction	--					
	TRAFFIC AND TRANSPORTATION/PEDESTRIAN AND BICYCLE FACILITIES								
T-1	A Final TMP will be prepared prior to project construction that identifies methods to avoid and minimize construction-related traffic and circulation effects and minimize impacts to pedestrian and bicycle access, including Americans with Disabilities Act (ADA)-compliant features, as a result of the proposed project. Elements in the Final TMP to minimize construction-related effects on traffic and circulation shall include a variety of techniques, including public information, motorist information, incident management, construction strategies, demand management, and alternate route strategies. During construction, the Contractor shall implement the methods identified in the Final TMP.	Contractor	Design/ Pre-Construction	7-1, 12-3, 12-4, and 16-2					
	VISUAL/AESTHETICS								
VA-1	Beginning with preliminary design and continuing through final design and construction, save and protect as many existing trees in the project area as feasible.	Design Engineer/ District Landscape Architect	Construction	--					
VA-2	Survey exact locations for trees and include in the plan set.	Design Engineer/ District Landscape Architect	Design Pre-Construction	--					

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VA-3	Protect the drip zone of isolated trees with temporary fencing.	Biologist/ Contractor	Design Pre-Construction	--					
VA-4	Protect large infield areas of existing plantings to be preserved with temporary fencing.	Design Engineer/ Contractor	Pre-Construction Construction	--					
VA-5	For portions of the freeway designated as a “Classified Landscaped Freeway,” and where landscaping/trees will be removed, every effort will be made to keep this designation by creating areas for replacement landscaping.	Design Engineer/ Contractor/ District Landscape Architect	Design	5-1, 20-3, and 20-4					
VA-6	For all new or relocated light fixtures and other sources of glare, provide shielded fixtures that prevent light trespass onto adjacent properties.	Design Engineer/Contractor	Design	48-2					
VA-7	For the application of aesthetics and landscape in the corridor, follow the guidelines established in Caltrans/OCTA’s Master Plan of Freeway and Transit Corridor Enhancements (1995) to develop a project-specific master plan of landscape and aesthetics.	Design Engineer/ District Landscape Architect	Design Construction	5-1, 20-1, 20-3, and 20-5					
VA-8	Beginning with preliminary design and continuing through final design and construction, develop construction plans that apply aesthetic treatments to the proposed bridges in the corridor that follow the guidelines in the Corridor Master Plan.	Design Engineer/ Resident Engineer/ Contractor/District Landscape Architect	Design Construction	--					
VA-9	Develop ornamental fencing for all pedestrian fencing on all overcrossings, pedestrian bridges, or other elements associated with pedestrian traffic.	Design Engineer/ Resident Engineer/ Contractor/District Landscape Architect	Design Construction	--					
VA-10	Beginning with preliminary design and continuing through final design and construction, develop construction plans that apply aesthetic treatments to the retaining walls and follow the guidelines in the Corridor Master Plan.	Design Engineer/ Resident Engineer/ Contractor/District Landscape Architect	Design Construction	51-1					
VA-11	Beginning with preliminary design and continuing through final design and construction, develop construction plans that apply aesthetic treatments to the soundwalls and follow the guidelines in the Corridor Master Plan.	Design Engineer/ Resident Engineer/ Contractor/District Landscape Architect	Design Construction	--					
VA-12	Provide replacement at the rate determined by the Caltrans District Landscape Architect. At a minimum, use a replacement ratio of 2:1, unless a higher ratio is required by the District Landscape Architect, to address the large number of removals that have occurred in the corridor.	Design Engineer/ Contractor/District Landscape Architect	Design Construction	5-1, 20-3, and 20-4					
VA-13	Include Caltrans maintenance access roads through the landscape so that these elements are integral to the overall design.	Design Engineer/ Resident Engineer/ Contractor/ District Landscape Architect	Design Construction	5-1					
VA-14	Include skyline trees in the planting palette to bring down the scale of the new freeway elements.	Design Engineer/ Contractor/District Landscape Architect	Design Construction	--					
VA-15	Provide vine plantings on one or both faces of soundwalls wherever feasible (given Caltrans setback and maintenance requirements). If vines are only planted on one side of the wall, vine portals will be included in the design of the wall to accommodate vine access to both sides of the wall.	Design Engineer/ Resident Engineer/ Contractor/ District Landscape Architect	Design Construction	--					

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VA-16	Develop and implement plans to landscape and revegetate disturbed areas, as directed by the Caltrans District Landscape Architect. These shall facilitate coordination between various construction stages to ensure that planting is not completed until construction in that area is complete and no further disturbance will occur.	Design Engineer/ Resident Engineer/ Contractor/District Landscape Architect	Design Construction	5-1, 20-3, and 20-4					
VA-17	In coordination with the District Landscape Architect, plant trees to the maximum extent feasible, given space constraints, to provide screening of the facility and structures.	Design Engineer/ Resident Engineer/ Contractor/ District Landscape Architect	Design Construction	--					
VA-18	Include a permanent irrigation system to all plantings. All irrigation shall follow the latest requirements for design and installation, including any requirements associated with drought, water restrictions, recycled water use, and water conservation as required by Caltrans.	Design Engineer/ Contractor/District Landscape Architect	Design Construction	20-2 and 20-4					
VA-19	Include an extended 3-year maintenance period as part of the construction period to provide a single source of maintenance through the establishment period.	Project Manager/ Design Engineer/ Resident Engineer/ Contractor/District Landscape Architect	Construction	5-1					
VA-20	Beginning with preliminary design and continuing through final design and construction, use drainage and water quality elements, where required, that maximize the allowable landscape.	Design Engineer/ Resident Engineer/ Contractor/ District Landscape Architect	Design Construction	20-3					
VA-21	Locate basins so that they would be at least 10 feet from the edge of the Caltrans plant setback to allow landscape screening to be installed.	Design Engineer/ Resident Engineer/ Contractor/District Landscape Architect	Design	20-1, 20-3, 20-4, and 20-10					
VA-22	Design infiltration/detention basins so that they appear to be a natural landscape feature, such as a dry streambed or a riparian pool. They should be shaped in an informal, curvilinear manner to the greatest extent possible.	Design Engineer/ Contractor/ District Landscape Architect	Design	--					
VA-23	Basin slope grading shall incorporate slope rounding, variable gradients, and be similar to the surrounding topography to de-emphasize the edge. If a wall or hard feature is necessary, it shall be worked into the overall design concept.	Design Engineer/ Contractor/ District Landscape Architect	Design Construction	--					
VA-24	Locate maintenance access drives in unobtrusive areas away from local streets. Such drives shall consist of inert materials that are visually compatible with the surrounding landscape.	Design Engineer/ Contractor/District Landscape Architect	Design Construction	5-1					
VA-25	Basins shall be designed so that chain-link perimeter fencing is not required.	Design Engineer/ Contractor/District Landscape Architect	Design	--					
VA-26	Revegetate any side slopes of detention and/or stormwater basins, as well as any bioswales, with container plantings. These plantings must be integral to the other replacement plantings in the corridor.	Design Engineer/ Contractor/ District Landscape Architect	Design	--					
VA-27	Design all visible concrete structures and surfaces to visually blend with the adjacent landscaping and natural plantings.	Design Engineer/ Contractor/ District Landscape Architect	Design	--					

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VA-28	Design rock slope protection to consist of aesthetically pleasing whole material with a variety of sizes.	Design Engineer/ Contractor/ District Landscape Architect	Design	47-2, 72-2, 72-3, 72-4, 78-4, and 96-1					
VA-29	Limit the use of bioswales within corridor landscape areas. If they must be used, locate them in nonobtrusive areas and the design shall appear natural to the greatest extent possible.	Design Engineer/ Contractor/District Landscape Architect	Construction	--					
VA-30	Provide decorative paving in all areas beyond the gore, to the length and widths shown in the Highway Design Manual Figure 504.2A (36-foot width from edge of pavement to edge of pavement).	Design Engineer/ Contractor/District Landscape Architect	Design	--					
VA-31	Provide decorative paving in all medians and parkway strips too narrow to plant. Decorative paving shall consist of a texture and color that contrasts with adjacent sidewalk or roadway paving.	Design Engineer/ Contractor/District Landscape Architect	Design	--					
	CULTURAL RESOURCES								
CR-1	If cultural resources are discovered at the jobsite, all work activities shall stop within a 60-foot radius of the discovery, the discovery area shall be protected, and the Resident Engineer shall be notified. Cultural resources shall not be moved or taken from the jobsite until Caltrans investigates and determines the significance of the find. Work activities shall not resume within the discovery area until Caltrans provides written notification authorizing work activities to resume.	Design Engineer/ Resident Engineer/ Contractor/ Archaeologist	Construction	14-2					
CR-2	If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities will cease in any area or nearby area suspected to overlie remains, and the County Coroner will be contacted. Pursuant to Public Resources Code (PRC) Section 5097.98, if the remains are thought to be Native American, the Coroner will notify the Native American Heritage Commission (NAHC), who will designate the Most Likely Descendent (MLD). At this time, the Caltrans District 12 Environmental Branch Chief will be contacted so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.	Design Engineer/ Resident Engineer/ Contractor/ Archaeologist	Construction	14-2					
	WATER QUALITY AND STORMWATER RUNOFF								
WQ-1	Implement Stormwater Best Management Practices (BMPs). The project shall conform with the Caltrans Statewide National Pollutant Discharge Elimination System (NPDES) Storm Water Permit Waste Discharge Requirements for the State of California Department of Transportation (Caltrans NPDES Permit) for discharges from Caltrans properties, facilities, and activities (Order No. 2012-0011-DWQ, NPDES Permit No. CAS000003, amended by Order No. 2014-077-DWQ) (Caltrans, 2016).	Design Engineer/ Resident Engineer/ Contractor/ OCTA/Caltrans	Construction	13-1					

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WQ-2	Prepare and Implement a Storm Water Pollution Prevention Plan (SWPPP). The Caltrans NPDES Permit requires compliance with requirements of the Construction General Permit for Storm Water Discharges Associated with Construction Activity (Construction General Permit) (Order No. 2009-0009-DWQ, NPDES Permit No. CAS000002, amended by Order No. 2010-0014-DWQ and by Order No. 2012-0006-DWQ (Caltrans, 2017). The Contractor shall develop a SWPPP per requirements of the Construction General Permit and Caltrans NPDES Permit. The SWPPP shall contain BMPs that have demonstrated effectiveness at reducing stormwater pollution. The SWPPP shall address all construction-related activities, equipment, and materials that have the potential to affect water quality. All construction site BMPs shall follow the latest edition of the Storm Water Quality Handbooks, Construction Site Best Management Practices (BMP) Manual (Caltrans, 2017), to control and minimize the impacts of construction-related pollutants. The SWPPP shall include BMPs to control pollutants, sediment from erosion, stormwater runoff, and other construction-related impacts. In addition, the SWPPP shall include implementation of specific stormwater effluent monitoring requirements based on the project's risk level to ensure that the implemented BMPs are effective in preventing discharges from exceeding any of the water quality standards.	Design Engineer/ Resident Engineer/ Contractor/ OCTA/Caltrans	Design/Pre- Construction/ Construction	13-1, 13-2, 13-3, 13-4, and 13-8					
WQ-3	Construction Site Dewatering. If dewatering is required for the project, the project will conform with the requirements specified in the Santa Ana Regional Water Quality Control Board's (RWQCB) dewatering permit Order R8-2015-0004 (NPDES No. CAG998001) or R8-2009-0045 (NPDES No. CAG918002), as appropriate.	Design Engineer/ Resident Engineer/ Contractor	Design/ Pre- Construction	--					
WQ-4	Design Pollution Prevention BMPs. The project will incorporate Design Pollution Prevention BMPs to the entire project to minimize potential pollution discharges generated during the operational phase. The incorporation of Design Pollution Prevention BMPs shall meet the objective of maximizing vegetated surfaces, preventing downstream erosion, and stabilizing soil areas.	Design Engineer/ Resident Engineer/ Contractor	Pre- Construction	13-1 and 13-3					
WQ-5	Treatment BMPs. The project shall incorporate Treatment BMPs by evaluating all nine Caltrans-approved Treatment BMPs and selecting the most efficient option in relation to the direct and indirect receiving water bodies associated with the project. Caltrans-approved Treatment BMPs shall be implemented to the maximum extent practicable (MEP) consistent with the requirements of the Caltrans NPDES permit.	Design Engineer/ Resident Engineer/ Contractor/ OCTA/Caltrans	Construction	13-1, 13-2, 13-3, 13-4, and 13-8					
	PALEONTOLOGY								
PAL-1	A standard special provision for paleontology mitigation will be included in the construction contract special provisions section advising the construction contractor of the requirement to cooperate with paleontological salvage.	Project Manager/ Design Engineer/ Resident Engineer/ Contractor District Environmental Specialist	Design Construction	--					

PAL-2	<p>A qualified Principal Paleontologist approved by Caltrans will prepare a detailed Paleontological Mitigation Plan (PMP) prior to the start of construction. The Paleontologist will have an M.S. or Ph.D. degree in paleontology or geology and will be familiar with paleontological salvage or mitigation procedures and techniques. The PMP will detail the paleontological monitoring to be implemented during construction and shall include, at a minimum, a description of the following elements:</p> <ul style="list-style-type: none">• Caltrans will perform paleontological monitoring and salvage during construction operations or related activities involving subsurface disturbance on this project. Within the boundaries of the project area, no construction or related activities that might involve subsurface disturbance of paleontologically sensitive geologic formations will be allowed without written authorization of the Engineer and the presence of a Paleontological Monitor. Caltrans will provide a Paleontological Salvage Team consisting of a qualified State-contracted Principal Paleontologist and Paleontological Monitors. The Engineer will make arrangements for the Paleontological Salvage Team to be at the jobsite. Rock units that require monitoring no matter depth of excavation are as follows:<ul style="list-style-type: none">– Old Paralic Deposits overlain by Alluvial Fan Deposits (Qopf) on both sides of Jamboree Road between Culver Drive and Jefferey Road– Very Old Axial Channel Deposits (Qvoa) on Sand Canyon Avenue– Very Old Alluvial Fan Deposits (Qvof) located east of Culver Avenue– Vaqueros Formation (Tv) from Sand Canyon Avenue to east of Irvine Center Drive– Although monitoring will be conducted on a full-time basis in all of the areas underlain by those rock units (except those areas underlain by Young Alluvial Fan Deposits and Young Axial Channel Deposits and where earth-moving activities will not reach 6 feet below the current ground surface), monitoring will be reduced to part time or spot checking in areas underlain by Very Old Alluvial Fan Deposits and Young Axial Channel Deposits if no fossil remains have been discovered after 50 percent of earth-moving activities in the latter areas has been completed. <p>Rock units and corresponding parts of project construction in which earth-moving activities will not require monitoring unless there are excavation depths below 6 feet are as follows:</p> <ul style="list-style-type: none">– Young Axial Channel Deposits (Qya) from Jamboree Road to Culver Drive– Young Alluvial Fan Deposits from MacAuthor Boulevard to Jamboree Road, east of Culver Drive, and west of Jeffrey Road to Irvine Center Drive <ul style="list-style-type: none">• The Paleontological Salvage Team will be notified 15 days in advance of the start of subsurface disturbing operations.• The construction contractor will attend a preconstruction meeting with the Paleontological Salvage Team and the Engineer to establish procedures for cooperation and provide for worker safety during monitoring and salvage activities. The Principal Paleontologist and Caltrans Paleontology Coordinator will be present at pregrading meetings to consult with grading and excavation contractors.• Just prior to the beginning of earth-moving activities, the Principal Paleontologist will conduct an employee environmental awareness training session for all persons involved in earth-moving activities for the project. All employees, subcontractors, and contractor's representatives involved in subsurface disturbing activities in the project area must receive a 1-hour paleontological resource awareness training program provided by the Paleontological Salvage Team before performing onsite work. A written request for the paleontological awareness training is to be submitted to the Engineer 10 days before the performance of any work.• Before the start of earth-moving activities, the Paleontological Salvage Team will conduct a preconstruction field survey of the project area, and exposed fossil remains will be recovered, as appropriate, particularly with regard to those remains observed at the two newly recorded fossil localities discovered during the field survey conducted in support of the Paleontological Identification Report/Paleontological Evaluation Report (PIR/PER) for this project. A qualified Paleontological Monitor under the direction of the Principal Paleontologist will be onsite to inspect fresh cuts for fossils at all times during original earth-moving activities involving sensitive geologic formations. If necessary, additional personnel will be assigned to recover unusually large or productive fossil occurrence.• The Paleontological Salvage Team will monitor and salvage appropriate fossil specimens identified during earth-moving activities. Members of the Paleontological Salvage Team may temporarily divert or stop construction operations in the vicinity of a fossil occurrence or notify of the need to avoid disturbing the fossil locality pending removal of the specimens. When fossils are discovered, the Paleontological Monitor will recover them and contact a Principal Paleontologist for assistance, if needed. Construction work in these areas will be halted or diverted to allow for the recovery of fossil remains in a timely manner.	Resident Engineer/ Contractor District Environmental Specialist/Design Engineer	Design Construction Post- Construction	--					
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	<ul style="list-style-type: none">As determined necessary by the Principal Paleontologist, bulk sediment samples will be recovered from fossiliferous horizons and fully processed (wet screened, sorted) to allow for the recovery of microvertebrate remains. If warranted, splits of selected samples will be submitted to the appropriate laboratories for processing and analysis. Processing splits will allow for the recovery and analysis of other types of microfossils, including ostracods, diatoms, and/or pollen.Fossil remains collected during the monitoring and salvage phase of the mitigation program will be prepared to a point allowing identification, stabilized, and cataloged. Recovered specimens will be prepared and identified to the lowest taxonomic level possible by appropriate paleontological specialists.Prepared fossils, along with copies of all pertinent field notes, photos, and maps, will then be deposited in a Caltrans-approved scientific institution with paleontological collections and made available for future scientific study by qualified investigators.A Paleontological Mitigation Report (PMR) that outlines the results of the mitigation program will be prepared and signed by the Principal Paleontologist. A copy of the report will be supplied to the museum repository and approved by Caltrans.At the completion of the project and as appropriate, the Caltrans Paleontology Coordinator will prepare a paleontology stewardship summary with a list of any long-term commitment. The list will be provided to Maintenance and Operations staff, including the Encroachment Permits Office.								
PAL-3	If paleontological resources are discovered at the jobsite, the material will not be disturbed. All work within a 60-foot radius of the discovery will stop, the area will be protected, and the Engineer will be notified. Caltrans will investigate and modify the dimensions of the protected area if necessary. Paleontological resources will not be removed from the jobsite without authorization. Work will not resume within the specified radius of the discovery until authorized. If unanticipated fossil remains are discovered in an area of the project area not being actively monitored, the remains will not be disturbed.	Design Engineer/ Resident Engineer/ Contractor District Environmental Specialist	Construction Post- Construction	14-7					
	HAZARDOUS MATERIALS								
HW-1	During final design, OCTA will ensure Aerially Deposited Lead (ADL) Site Investigations consisting of limited soil sampling will be conducted for all unpaved portions of the project site where soil will be disturbed. If the depth of excavation at the paved areas exceeds the depth of the existing subbase (coarse materials), native soil in these areas will be also tested. Results of hazardous waste sampling will indicate the level of remediation efforts required. Any special handling, treatment, or disposal provisions associated with ADL will be included in the final project construction package.	OCTA/Design Engineer	Final Design	14-11					
HW-2	Prior to construction, the stockpile of unknown origin consisting of soil and demolition debris at the I-405 SB on-ramp to SR-133 will be tested for waste characterization if it is still present at the time of the recommended soil sampling.	OCTA/Design Engineer	Final Design	14-11					
HW-3	Due to a diesel fuel spill incident that occurred along I-405 SB south of Von Karman Avenue, OCTA will ensure the soil south of Von Karman Avenue and north of Jamboree Road along the I-405 SB shoulder is tested for total petroleum hydrocarbons as diesel (TPH-d) during final design.	OCTA/Design Engineer	Final Design	14-11					
HW-4	During final design, OCTA will ensure asbestos-containing materials (ACM) and lead-based paint (LBP) surveys are conducted where structures will be disturbed, including at San Diego Creek Channel (Reach 1) Bridge Nos. 55-0285 and San Diego Creek Channel (Reach 2) Bridge No. 55-0451 located at Postmile (PM) 6.41 and PM 1.50, respectively.	Design Engineer/ ROW Agent/ Resident Engineer/ OCTA	Design ROW Acquisition Construction	14-11, 18-1, and 84-2					
HW-5	Prior to construction, sampling and analysis of yellow striping will be performed by the Contractor in accordance with Construction Program Procedure Bulletin 99-2 (Caltrans, 2006).	Design Engineer/ ROW Agent/ Resident Engineer/ OCTA	Pre- Construction	--					

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HW-6	During construction, removal of any creosote-treated wood power poles will require proper disposal as a hazardous waste.	Design Engineer/ ROW Agent/ Resident Engineer/ OCTA	Construction	14-11					
	AIR QUALITY								
AQ-1	The construction Contractor must comply with the Caltrans Standard Specifications in Section 14-9 (2015).	Design Engineer/ Resident Engineer/ Contractor	Construction	14-9					
AQ-2	Section 14-9.02 specifically requires compliance by the Contractor with all applicable laws and regulations related to air quality, including air pollution control district and air quality management district regulations and local ordinances.	Design Engineer/ Resident Engineer/ Contractor	Construction	14-9					
AQ-3	Section 14-9.03 is directed at controlling dust. If dust palliative materials other than water are to be used, material specifications are described in Section 18.	Design Engineer/ Resident Engineer/ Contractor	Construction	14-9					
AQ-4	The construction Contractor must comply with South Coast Air Quality Management District (SCAQMD) Rule 403 (Fugitive Dust). Water or dust palliative will be applied to the site and equipment as often as necessary to control fugitive dust emissions. Fugitive emissions generally must meet a “no visible dust” criterion either at the point of emissions or at the ROW line depending on local regulations.	Design Engineer/ Resident Engineer/ Contractor	Construction	10-4, 10-5, and 18-1					
AQ-5	Soil binder will be spread on any unpaved roads used for construction purposes and on all project construction parking areas.	Design Engineer/ Resident Engineer/ Contractor	Construction	13-5					
AQ-6	Trucks will be washed as they leave the ROW as necessary to control fugitive dust emissions.	Design Engineer/ Resident Engineer/ Contractor	Construction	10-5 and 18-1					
AQ-7	A dust control plan will be developed documenting sprinkling, temporary paving, speed limits, and timely revegetation of disturbed slopes as needed to minimize construction impacts to existing communities.	Design Engineer/ Resident Engineer/ Contractor	Construction	10-5					
AQ-8	Equipment and materials storage sites will be located as far away from residential and park uses as practicable. Construction areas will be kept clean and orderly.	Design Engineer/ Resident Engineer/ Contractor	Construction	--					
AQ-9	Track-out reduction measures, such as gravel pads at project access points to minimize dust and mud deposits on roads affected by construction traffic, will be used.	Design Engineer/ Resident Engineer/ Contractor	Construction	--					
AQ-10	All transported loads of soils and wet materials will be covered before transport, or adequate freeboard (space from the top of the material to the top of the truck) will be provided to minimize emission of dust (particulate matter) during transportation.	Design Engineer/ Resident Engineer/ Contractor	Construction	--					
AQ-11	Dust and mud that are deposited on paved, public roads due to construction activity and traffic will be promptly and regularly removed to decrease particulate matter.	Design Engineer/ Resident Engineer/ Contractor	Construction	13-4					
AQ-12	Mulch will be installed or vegetation planted as soon as practical after grading to reduce windblown particulate in the area. Be aware that certain methods of mulch placement, such as straw blowing, may themselves cause dust and visible emission issues and may need to use controls such as dampened straw. Hydroseeding may be used as an alternative to mulch.	Design Engineer/ Resident Engineer/ Contractor	Construction	13-5, 20-1, 20-5, and 21-2					

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AQ-13	Construction equipment and vehicles will be properly tuned and maintained. All construction equipment will use low sulfur fuel as required by California Code of Regulations Title 17, Section 93114.	Design Engineer/ Resident Engineer/ Contractor	Construction	--					
AQ-14	Environmentally Sensitive Areas or their equivalent will be established within 1,000 feet of sensitive air receptors. Within these areas, construction activities involving the extended idling of diesel equipment or vehicles will be prohibited, to the extent feasible.	Design Engineer/ Resident Engineer/ Contractor	Construction	--					
AQ-15	To the extent feasible, construction traffic will be scheduled and routed to reduce congestion and related air quality impacts caused by idling vehicles along local roads during peak travel times.	Design Engineer/ Resident Engineer/ Contractor	Pre- Construction	--					
AQ-16	Under California Air Resources Board's (ARB) idling emissions rule, 2008 and newer model year heavy-duty diesel engines will be equipped with a nonprogrammable engine shutdown system that automatically shuts down the engine after 5 minutes of idling, or optionally meet a stringent nitrogen oxides (NO _x) idling emission standard. This rule applies to diesel-fueled commercial motor vehicles that operate in the State of California with gross vehicular weight ratings of greater than 10,000 pounds that are or must be licensed for operation on highways.	Design Engineer/ Resident Engineer/ Contractor	Construction	--					
AQ-17	To the extent feasible, all construction signal/message boards shall be solar powered.	Design Engineer/ Resident Engineer/ Contractor	Construction	--					
AQ-18	To the extent feasible, electricity shall be obtained from power poles rather than temporary diesel or gasoline generators.	Design Engineer/ Resident Engineer/ Contractor	Construction	--					
	NOISE								
N-1*	Section 14-08-02 of Caltrans Standard Specifications that addresses construction noise and vibration which states "the construction noise should not exceed 86 dBa at 50 feet from the jobsite from 9:00 pm to 6:00 am."	Resident Engineer/ Contractor	Construction	14-8					
N-2*	Control and monitor noise resulting from work activities.	Resident Engineer/ Contractor	Construction	14-8					
	NATURAL COMMUNITIES								
BIO-1*	Delineation of ESAs. Prior to clearing or construction, highly visible barriers (e.g., orange construction fencing) will be installed around areas adjacent to the project footprint to designate environmentally sensitive areas (ESAs) to be protected/avoided. Silt fence barriers will be installed at the ESA boundary to prevent accidental deposition of fill material in areas where vegetation is immediately adjacent to planned grading activities. Silt fencing will be installed to exclude western pond turtles.	Design Engineer/ Resident Engineer/Qualified Biologist/ Contractor	Pre- Construction Construction	--					
BIO-2*	Onsite Training. When in or near natural habitat areas, all personnel will be required to participate in a preconstruction environmental training program that will describe sensitive habitats, sensitive species, and avoidance and minimization measures associated with the resources in the immediate work area. The training will be conducted by a qualified biologist that has experience in construction monitoring and the biological resources present in the immediate work area. The training will be repeated as needed (e.g., weekly) so that all construction personnel are trained within 1 week of working on the project.	Qualified Biologist/ Contractor	Pre- Construction Construction	--					

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BIO-3*	Avoidance of Breeding Season. Initial vegetation clearing in riparian habitats must occur between October 1 and January 31, which is during the nonbreeding season for birds/raptors. Work in riparian habitats may occur during the breeding season between February 1 and September 30 if preconstruction bird surveys indicate the absence of any nesting birds within a 50-foot radius and the absence of any nesting special-status species/nesting raptors within a 500-foot radius. A smaller protective buffer may be requested depending on the sensitivity of the species, location of the nest, and existing site conditions (e.g., existing high levels of human activity and/or noise in the vicinity of the nest).	OCTA/ Resident Engineer/ Designated Qualified Biologist/ Contractor	Pre-Construction Construction	--					
BIO-4*	Biological Monitoring. The Biological Monitor will be present onsite during all grubbing and clearing of vegetation near ESAs to ensure that these activities remain within the project footprint and that the flagging/stakes/fencing is being maintained. The Biological Monitor will send weekly monitoring reports to Caltrans and the OCTA Natural Community Conservation Plan (NCCP) Administrator during the grubbing and clearing of vegetation near ESAs.	OCTA/ Resident Engineer/Qualified Biologist/ Contractor	Construction	14-6					
BIO-21*	Noise Levels during Construction. If project construction that generates intensive noise (e.g., pile driving) cannot be completed during the nonbreeding season for birds/raptors (i.e., October 1 to January 31), noise levels at the nest location of federally or State-listed birds and nesting raptors will be kept at or below a 1-hour average (Leq(1)) of 60 A-weighted decibels (dBA) or will not increase noise levels more than 3 dBA above ambient noise levels, whichever is greater, during the breeding season (i.e., February 1 to September 30). The use of noise-generating equipment (e.g., generators) will be avoided within 500 feet of federally or State-listed birds and nesting raptors.	OCTA/ Resident Engineer/Qualified Biologist/ Contractor	Construction	--					

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BIO-23*	<p>Use of Best Management Practices during Construction. Caltrans/OCTA will identify structural and nonstructural Best Management Practices (BMPs) to control sediment and non-stormwater discharges from the project site to protect water quality. Actions to prevent sediment from entering watercourses during and after construction may include, but are not limited to, the following BMPs: silt fencing, fiber rolls, gravel bag berms, sand bag barriers, tracking controls, stockpile management, dry season scheduling, proper material delivery and storage, solid waste management, concrete waste management, preservation of existing vegetation, temporary soil stabilization, dust and erosion control, soil binders, and straw mulch. No site personnel will discard solid or liquid materials into jurisdictional water features or any ESA lands. Temporary construction-related BMPs may include, but will not be limited to, the following:</p> <ul style="list-style-type: none">• Silt Fence. A silt fence is made of a filter fabric that has been entrenched, attached to supporting poles, and sometimes backed by a plastic or wire mesh for support. The silt fence detains sediment-laden water, promoting sedimentation behind the fence.• Fiber Rolls. A fiber roll consists of straw, coir, or other biodegradable materials bound into a tight tubular roll and wrapped by netting, which can be photodegradable or natural. Fiber rolls with plastic netting that poses a wildlife entanglement hazard will not be used. Fiber rolls used for erosion control will be certified as free of noxious weed seed. When fiber rolls are placed at the toe and on the face of slopes along contours, they intercept runoff; reduce its flow velocity; release the runoff as sheet flow; and provide removal of sediment from the runoff. By interrupting the length of a slope, fiber rolls can also reduce sheet and rill erosion until vegetation is established.• Gravel Bag Berms. A series of gravel-filled bags are placed on a level contour to intercept sheet flows. Gravel bags pond sheet flow runoff, allowing sediment to settle out and release runoff slowly as sheet flow, preventing erosion.• Preservation of Existing Vegetation. Careful planned preservation of existing vegetation minimizes the potential removal or injury to existing trees, vines, shrubs, and grasses that protect soil from erosion.• Stockpile Management. Stockpile management procedures and practices are designed to reduce or eliminate air and stormwater pollution from stockpiles of soil, paving materials (e.g., Portland cement concrete rubble, asphalt concrete, asphalt concrete rubble, aggregate base, aggregate subbase, or pre-mixed aggregate), asphalt minder (so called “cold mix” asphalt), and pressure-treated wood.• Vehicle and Equipment Maintenance. Contamination of stormwater resulting from vehicle and equipment maintenance can be prevented or reduced by running a “dry and clean site.” The best option will be to perform maintenance activities at an offsite facility. If this option is not available, then work shall be performed in designated areas only, while providing cover for materials stored outside, checking for leaks and spills, and containing and cleaning up spills immediately. Employees and subcontractors must be trained in proper procedures.	OCTA/ Resident Engineer/Qualified Biologist/ Contractor	Pre- Construction Construction	10-5, 13-4, 13-6, 13-10, and 18-1					

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BIO-25*	<p>Dewatering. Construction activities in special aquatic resources will be restricted to the dry season (June 1 through October 15) when possible; however, open or flowing water may be present during construction. If construction occurs where there is open or flowing water, a strategy that is approved by the resource agencies (e.g., United States Army Corps of Engineers [USACE], California Department of Fish and Wildlife's [CDFW] Lake and Streambed Alteration Program, and RWQCB), such as the creation of cofferdams, will be used to dewater or divert water from the work area. If cofferdams are constructed, implementation of the following cofferdam or water diversion measures is recommended to avoid and lessen aquatic resources impacts during construction:</p> <ul style="list-style-type: none">• The cofferdams, filter fabric, and corrugated steel pipe are to be removed from the creek bed after completion of the project. The creek bed will be returned to preconstruction topographic contours.• The timing of work within all channelized waters is to be coordinated with the regulatory agencies.• The cofferdam is to be placed upstream of the work area to direct base flows through an appropriately sized diversion pipe. The diversion pipe will extend through the contractor's work area, where possible, and outlet through a sandbag dam at the downstream end.• Sediment catch basins immediately below the construction site are to be constructed when performing in-channel construction to prevent silt- and sediment-laden water from entering the mainstream flow. Accumulated sediments will be periodically removed from the catch basins.	Resident Engineer/Qualified Biologist/ Contractor	Pre-Construction Construction	13-1, 13-4, 13-8, 19-3, 49-1, 49-3, 51-1, and 68-3					
BIO-26*	<p>Restoration of Temporary Impacts. Areas of natural habitat that are temporarily affected by construction activities will be restored to a natural condition. The restoration effort will emulate surrounding vegetation characteristics and/or return to previous conditions. For freeway construction projects, revegetation plans will be part of the project design following Caltrans' landscape architecture guidelines and requirements. Restoration plans will be reviewed and approved by the Wildlife Agencies.</p>	Resident Engineer/Qualified Biologist/ Contractor	Construction	14-6					
	ANIMAL SPECIES								
BIO-5*	<p>Western Spadefoot Preconstruction Surveys. If construction begins during the western spadefoot breeding season (February through June), a qualified Biological Monitor will survey the impact area for any areas of ponded water (including road ruts) that occur within the impact area for the presence of western spadefoot eggs and/or tadpoles. If no eggs or tadpoles are observed, no further measures will be required. If spadefoot eggs and/or tadpoles are observed in the impact footprint, the area will be avoided until the tadpoles have metamorphosed.</p>	Resident Engineer/Qualified Biologist/ Contractor	Pre-Construction Construction	14-6					
BIO-6*	<p>Western Spadefoot Translocation Plan. If the area cannot be avoided, a qualified biologist will prepare a Western Spadefoot Translocation Plan that proposes a location where the eggs/tadpoles will be moved and describes methods that will be used to carry out the translocation. The Western Spadefoot Translocation Plan will be reviewed and approved by CDFW and will be implemented as approved</p>	Resident Engineer/Qualified Biologist/ Contractor	Pre-Construction Construction	14-6					
BIO-7*	<p>Western Pond Turtle Avoidance and Minimization Plan. Caltrans/OCTA will prepare a Western Pond Turtle Avoidance and Minimization Plan for review and approval by CDFW. The Plan will describe: (1) the methodology for preconstruction surveys based on the planned start of construction (i.e., within or outside of the season when western pond turtles are active); (2) exclusionary measures that will be installed around the construction impact area to exclude turtles; (3) methodology for relocation of western pond turtles outside of the construction impact area; (4) identification of a relocation site at a nearby location in the same watershed as the project; (5) biological monitoring requirements during construction; and (6) avoidance measures to be implemented during construction to avoid and minimize impacts on the western pond turtle.</p>	OCTA/ Resident Engineer/Qualified Biologist/ Contractor	Pre-Construction Construction	14-6					

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BIO-8*	Western Pond Turtle Preconstruction Surveys. Two weeks prior to ground-disturbing activities (including placement of heavy equipment) in or near aquatic habitats (i.e., along San Diego Creek – North and San Diego Creek – South), Caltrans/OCTA will ensure that a preconstruction survey is conducted for western pond turtles as described in the Western Pond Turtle Avoidance and Minimization Plan. The preconstruction surveys will be conducted by a CDFW-approved qualified biologist (i.e., one with pond turtle trapping/handling experience and holding a CDFW Scientific Collecting Permit to carry out these activities) to determine their presence or absence within the construction footprint.	OCTA/ Resident Engineer/ Qualified Biologist/ Contractor	Pre-Construction Construction	14-6					
BIO-9*	Western Pond Turtle Exclusion and Relocation. If western pond turtles are present in the Biological Study Area (BSA) during preconstruction surveys, exclusion and relocation of western pond turtles as described in the Western Pond Turtle Avoidance and Minimization Plan (BIO-8) and approved by CDFW will be implemented. The Plan will provide for the erection of turtle barriers/exclusion fencing and surveys of the construction area to capture and relocate turtles from within the project work area. Turtles will be relocated to nearby suitable habitat a minimum of 300 feet downstream from the work area or another appropriate nearby location within the watershed; relocation areas will be described in the Western Pond Turtle Avoidance and Minimization Plan and will be approved by CDFW prior to relocation of turtles. Immediately prior to initiation of construction, the CDFW-approved biologist will visually survey the work area and will relocate any western pond turtles to the relocation site as approved by CDFW in the Western Pond Turtle Avoidance and Minimization Plan.	Resident Engineer/ Qualified Biologist/ Contractor	Pre-Construction Construction	14-6					
BIO-10*	Biological Monitoring in Western Pond Turtle Occupied Habitat. Biological Monitoring will occur as described in the Western Pond Turtle Avoidance and Minimization Plan. In areas where western pond turtle occurrence is assumed (i.e., San Diego Creek – North and San Diego Creek – South), a Biological Monitor will be present onsite during vegetation clearing regardless of the outcome of preconstruction surveys and during other construction activities as described in the Plan. If a pond turtle is observed in the impact area (i.e., it was not captured during preconstruction trapping or enters into the construction area following trapping), the Biological Monitor will have the authority to stop construction activities that could harm the turtle until it can be captured and relocated out of the impact area. Exclusionary fencing will be used to ensure western pond turtles are kept out of the construction area as described in the Western Pond Turtle Avoidance and Minimization Plan. Exclusionary fencing will be maintained throughout the duration of construction. The integrity of the exclusion fencing will be checked daily by the Biological Monitor throughout construction. Additionally, the Biological Monitor will check the work area every morning before construction may begin to ensure that no turtles are within the exclusion area. Any western pond turtle found will be relocated immediately to the relocation area approved in the Western Pond Turtle Avoidance and Minimization Plan. Construction will avoid work in ponded or flowing water within 1,500 feet of known turtle locations unless alternative avoidance and minimization measures described in the Western Pond Turtle Avoidance and Minimization Plan are approved by CDFW in the Plan.	Resident Engineer/ Qualified Biologist/ Contractor	Pre-Construction Construction	14-6					

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BIO-11*	<p>Nesting Bird Survey. If Caltrans/OCTA determines that avoidance of the avian breeding season is not feasible, at least 2 weeks prior to the initiation of project activities during the nesting bird/raptor season (i.e., February 1 to September 30 for birds/raptors), a qualified biologist with experience in conducting breeding bird surveys will conduct weekly bird surveys to detect presence/absence of migratory and resident bird species occurring in suitable nesting habitat that would be directly or indirectly disturbed and (as access to adjacent areas allows) any other such habitat within an appropriate buffer distance of the disturbance area. Generally, the buffer distance should be 300 feet (500 feet for federally and State-listed bird species and nesting raptors); however, because the project occurs along a noisy freeway, a buffer distance as low as 100 feet for common species and non-raptors could be appropriate. If a narrow buffer distance is warranted, Caltrans/OCTA will have a qualified biologist identify the appropriate buffer distances for raptors and non-raptors in consultation with the Caltrans Resident Engineer and will notify CDFW. The surveys will continue weekly, with the last survey being conducted no more than 3 days prior to the initiation of project activities. If a nesting bird species is found, Caltrans/OCTA will do the following to avoid and minimize impacts on native birds and the nest or eggs of any birds:</p> <ul style="list-style-type: none">Flagging, stakes, and/or construction fencing will be used to demarcate the inside boundary of the buffer between the project activities and the nest.The Biological Monitor will be present onsite during all grubbing and clearing of vegetation to ensure that these activities remain within the project footprint (i.e., outside the demarcated buffer); to ensure that the flagging/stakes/fencing is being maintained; and to minimize the likelihood that active nests are abandoned or fail due to project activities. The Biological Monitor will send weekly monitoring reports to Caltrans/OCTA and the OCTA NCCP Administrator during the grubbing and clearing of vegetation and will notify Caltrans/OCTA and the OCTA NCCP Administrator immediately if project activities take, possess, or needlessly destroy the nest or eggs of any bird, any bird of prey, or any active bird nests or eggs. Within 48 hours of damage to an active nest or eggs or observed death or injury of birds protected under State law or the Migratory Bird Treaty Act (MBTA), Caltrans/OCTA will notify United States Fish and Wildlife Service (USFWS)/CDFW.	OCTA/ Resident Engineer/ Qualified Biologist/ Contractor	Pre-Construction Construction	14-6					
BIO-12*	<p>Avoidance of Crevice-Roosting Bats: Direct modification of culvert and bridge structures and/or construction activities that may cause significant vibration impacts on bat roost structures will be scheduled to avoid the bat maternity season (i.e., March 1 through August 31). Focused surveys will be performed at least 1 year prior to construction to determine the potential for bat roosts, species, and colony type (i.e., maternity) present in the project area. If construction activities on these structures cannot be scheduled to avoid the bat maternity season, then temporary bat exclusion devices will be installed to block crevices that could be used for roosting. Exclusion devices will be installed in the fall (i.e., September and October) and will be removed at the conclusion of the construction activities. The bat exclusion devices will be designed to allow bats to exit the roost areas but not re-enter through use of a one-way door type design. All bat exclusion designs will be approved by a qualified bat specialist and CDFW. Installation of the bat exclusion devices will be conducted under supervision of a qualified bat specialist.</p>	Design Engineer/ Resident Engineer/ Qualified Biologist/ Contractor/ OCTA	Construction	14-1 and 14-6					
BIO-13*	<p>Preconstruction Roosting Bat Survey. Focused surveys will be performed at least 1 year prior to construction to determine the potential for bat roosts, species, and colony type (i.e., maternity) present in the project area. In addition, a preconstruction bat roosting survey will be conducted within 2 weeks prior to direct modification to culvert and bridge structures, even if exclusion measures were installed the previous fall. If the structure is being used as an active day roost during the maternity season, construction will be delayed until September 1, or until a qualified bat specialist determines that breeding activities are complete. If the structure is being used as an active day roost during the non-maternity season, construction activities may commence with approval from CDFW, but construction will occur at night so as not to disturb day-roosting bats.</p>	Resident Engineer/ Qualified Biologist/ Contractor	Pre-Construction Construction	14-1 and 14-6					
BIO-14*	<p>Biological Monitoring by a Bat Specialist. Direct modification to culverts and bridges will be monitored by a qualified bat specialist unless the bat specialist determines that the culvert/bridge is no longer being actively used for day roosting.</p>	Resident Engineer/ Qualified Biologist/ Contractor	Pre-Construction Construction	--					

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BIO-15*	Night Lighting during Construction. Night lighting used during construction and/or additional permanent night lighting will be contained to the ROW. No artificial lighting will illuminate the inside of culverts, the underside of bridges, and/or the streambed/native vegetation along waterways during the evening or night hours (unless direct modification to a culvert or bridge is occurring at night under the supervision of a qualified bat specialist as described above). Lighting plans for permanent light fixtures will be submitted to Caltrans/OCTA for review during the project design phase to ensure that lighting has been minimized to the extent practicable.	Design Engineer/ Resident Engineer/ Qualified Biologist/ Contractor/ OCTA	Design/ Construction	16-2					
BIO-16*	Avoidance of Foliage-Roosting Bats. Prior to removal of mature ornamental or riparian trees, a qualified bat specialist will conduct a preconstruction roosting bat survey of the trees to be removed. If no bat roosting is observed, the trees can be removed. If an active day roost is observed during the bat maternity season (i.e., March 1 through August 31), tree removal will be delayed until September 1, or until a qualified bat specialist has determined that bats are no longer breeding. If an active day roost is observed during the non-maternity season (September 1 to February 29), phased tree trimming or exclusionary netting (to allow bats to exit the trees but not re-enter) will be used to allow bats to leave the roost prior to tree removal. All bat exclusion designs will be approved by a qualified bat specialist and CDFW. Installation of bat exclusion devices and tree removal will be conducted under the supervision of a qualified bat specialist.	Design Engineer/ Resident Engineer/ Qualified Biologist/ Contractor/ OCTA	Construction	14-6 and 16-2					
BIO-20*	Review of Permanent Night Lighting. Lighting plans for permanent light fixtures will be submitted for review by Caltrans/OCTA during the project design phase to ensure that lighting has been minimized to the extent practicable. The review will ensure that lighting in or adjacent to conserved habitat (i.e., San Diego Creek, Quail Hill Open Space) is eliminated except where it is essential for roadway use, facility use, safety, or security purposes. It will also ensure that low-pressure sodium illumination sources are used and that low-voltage outdoor or trail lighting, spotlights, and bug lights are not used. Lastly, it will ensure light sources adjacent to conserved habitat is shielded so that the lighting is focused downward.	Design Engineer/ Resident Engineer/ Qualified Biologist/ OCTA	Design	16-2					
BIO-28*	Trash Control. To avoid attracting predators of Covered Species and other sensitive species, the project site will be kept as clean of debris as possible. All food-related trash items will be enclosed in sealed containers and regularly removed from the site(s).	Resident Engineer/ Qualified Biologist/ Contractor	Construction	5-1, 13-10, and 14-10					
	INVASIVE SPECIES								
BIO-18	Equipment Cleaning. All construction equipment entering and exiting the project construction site will be inspected and cleaned prior to use in the project footprint to minimize the importation of non-native plant material.	Resident Engineer/ Contractor	Construction	14-11 and 16-2					
BIO-27	Invasive Species Control. Invasive species will be removed from the project work area and controlled during construction. The use of known invasive plant species (i.e., plant species listed in California Invasive Plant Council's [Cal-IPC] California Invasive Plant Inventory with a High or Moderate rating) will be prohibited for construction, revegetation, and landscaping activities. Project measures will be included to ensure invasive plant material is not spread from the project site to other areas by disposal offsite or by tracking seed on equipment, clothing, and shoes. Equipment/material imported from an area of invasive plants must be identified and measures implemented to prevent importation and spreading of nonnative plant material within the project site. All construction equipment will be cleaned with water to remove dirt, seeds, vegetative material, or other debris that could contain or hold seeds of noxious weeds before arriving to and leaving the project site. Eradication strategies (i.e., weed abatement programs) will be employed should an invasion occur during construction.	Resident Engineer/ Contractor	Construction	13-4					

¹ Standardized measures which are employed on most, if not all, Caltrans projects are indicated in bold.

